



The Nature Conservancy in New Hampshire
22 Bridge Street, 4th Floor
Concord, New Hampshire 03301-4987

tel [603] 224.5853
fax [603] 228.2459
nature.org/newhampshire

April 8, 2016

Robert Scott, Subcommittee Chairman
New Hampshire Site Evaluation Committee
c/o New Hampshire Department of Environmental Services
29 Hazen Drive, PO Box 95
Concord, New Hampshire 03302-0095

RE: Antrim Wind Energy LLC - SEC Docket No. 2015-02

Dear Commissioner Scott and members of the New Hampshire Site Evaluation Committee:

Thank you for this opportunity to provide comments in the above referenced docket concerning an application for a proposed 28.8 MW, 9 Turbine, wind energy facility located just south of Route 9 in the northwestern portion of Antrim, NH (hereinafter referred to as AWE project). The Nature Conservancy in New Hampshire has reviewed only the portions of the application for which we have the organizational expertise and capacity to provide meaningful input into your decision making process - notably, the potential environmental benefits and impacts of the proposal.

The Nature Conservancy has a long history of conserving and managing land in this region, including in the towns of Antrim and Stoddard. Our Loverens Mill Cedar Swamp Preserve, containing a high quality and globally rare Atlantic white cedar swamp, is located a short distance north from the proposed AWE project. In addition, our 1,300-acre Otter Brook preserve lies due west of the proposed facility, providing significant wildlife habitat and supporting several unusual and exemplary forest and wetland natural communities. These preserves comprise a portion of the nearly 15,000 acre Andorra Forest/Otter Brook conservation focus area, one of the largest contiguous forest blocks in Southwestern New Hampshire.

For years, The Nature Conservancy has also worked to advance clean and renewable energy policies in New Hampshire and across the nation as a way to reduce carbon emissions from electric generating facilities. The Conservancy supports the advancement of well-sited renewable energy facilities – including wind facilities – and supported the recent NH Legislative efforts to reform the Site Evaluation Committee and the most recent rulemaking docket that clarified the criteria the SEC uses for decision making.

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We recognize that all energy development projects have impacts on the natural environment. In the case of renewable energy, we must examine and weigh both the localized environmental impacts and the local, regional and global environmental benefits. The Nature Conservancy's review of the available data indicates that the AWE project will have impacts on the natural and physical environment. However, in our view, the overall impact is not unreasonably adverse and the application offers a reasonable overall package to help mitigate or offset these impacts. We acknowledge that certain impacts, such as bird mortality, are difficult to fully mitigate and should be considered in the overall public cost-benefit analysis of renewable energy development that the Committee must weigh before issuance of a certificate to operate.

The Nature Conservancy's Interest

The Nature Conservancy is a nonprofit organization dedicated to conservation for the benefit of people and nature. Our mission is to conserve the lands and waters on which all life depends. We address the most urgent conservation challenges at the largest scale by pursuing collaborative, pragmatic, science- and market-based solutions. Our vision is to leave a sustainable world for future generations.

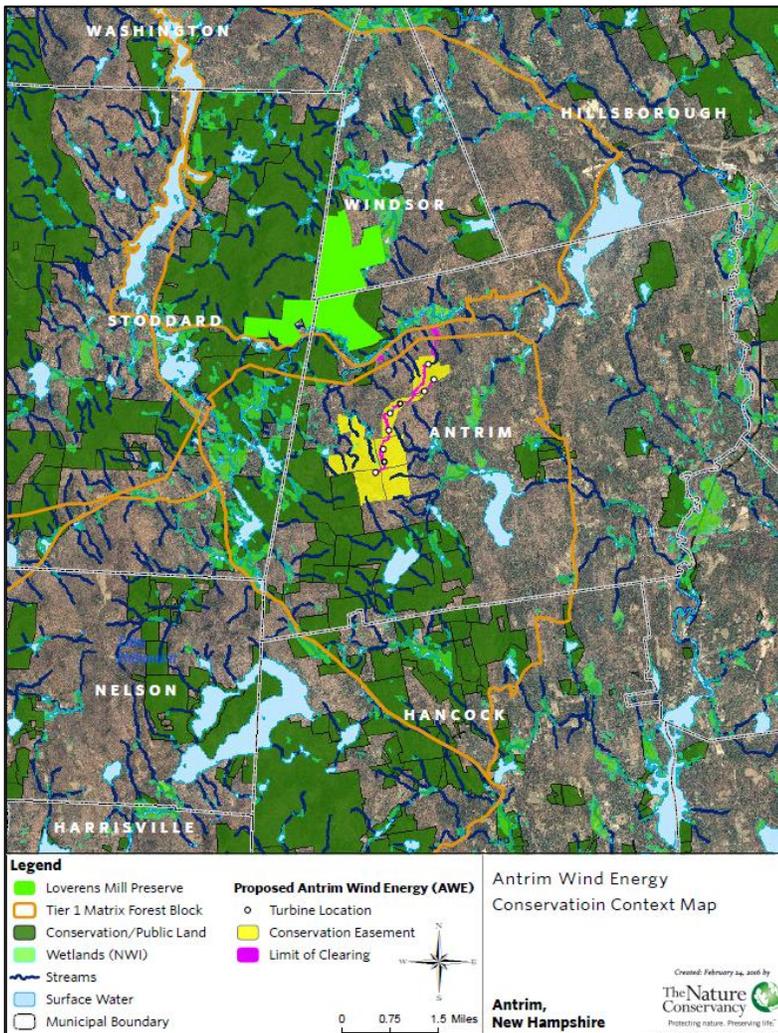
The Nature Conservancy's on-the-ground conservation work is carried out in all 50 states and in 69 countries around the world with the support of approximately one million members. Since 1961, The Nature Conservancy has helped to protect over 290,000 acres of land in New Hampshire by utilizing sound conservation science. We are working with communities and a wide variety of public and private partners across the state to establish resilient, connected landscapes; foster healthy rivers and freshwater systems; build sustainable fisheries; restore estuarine health; and create a clean energy future for New Hampshire. The Conservancy has approximately 10,000 supporters in New Hampshire, with many long-time members residing in the communities impacted by this project.

The proposed AWE project intersects with two of The Nature Conservancy's key strategic foci as an organization: (1) protecting and ensuring the long-term viability of critical lands for biodiversity; and (2) promoting sustainable energy as a means of reducing greenhouse gas emissions.

For decades, The Nature Conservancy has worked in collaboration with our conservation partners to conserve large tracks of contiguous forests along with outstanding wetland complexes in the vicinity of the Andorra Forrest and Willard Mountain Matrix Forest Blocks (see map on next page). A matrix forest

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is a large contiguous area whose size and condition allows for the maintenance of key ecological process, embedded natural communities, and viable species populations. These blocks were selected with the goal of identifying examples of forest areas that, if maintained, have the potential to serve as source areas for species that thrive in interior forest conditions or are otherwise closely associated with the dominant forest types.



The Conservancy’s 1,200-acre Loverens Mill Cedar Swamp Preserve is set within a conservation landscape that now contains some 15,000 contiguous acres of protected forestland. The Preserve is home to a 50- acre, globally rare inland boreal Atlantic white cedar swamp – the second largest and considered the highest quality cedar swamp in New Hampshire. Pollen studies have revealed that Atlantic while cedar has been present for more than 4,000 years in this place. The cedar swamp is surrounded by high hills that funnel cold air into the swamp, simulating a climate found further north and giving the swamp its northern character. In addition to its unique natural and wildlife resources, the Preserve is

open to the public year-round for recreation. A three-mile trail system provides access to the Atlantic white cedar swamp, forests and river shore along the North Branch of the Contocook. The proposed Antrim wind energy project is located across Route 9, on a ridge just south of the Loverens Mill Preserve.

Rapid growth in demand for energy worldwide is having a two-fold impact on our conservation mission in New Hampshire, across North America and around the globe. Carbon emissions from production and use of fossil fuels are propelling climate change while the footprint of energy development—both

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renewable and non-renewable—is expanding. In addition to our efforts to directly conserve critical lands and waters, The Nature Conservancy has been an active participant over the years in the development of New Hampshire’s energy policies, including the *New Hampshire 10-Year State Energy Strategy* [NH OEP, 2014], *NH Climate Change Action Plan* [NH DES, 2009], the Renewable Portfolio Standard (NH RSA 362-F), the Regional Greenhouse Gas Initiative (NH RSA 125-O:20-29), among others.

To meet greater energy demand while ensuring the long-term health of our lands, waters, and the biodiversity they support, we believe that there must be a fundamental shift in the region’s energy strategies, away from traditional fossil based generation to clean and renewable distributed energy facilities. Given the importance of bringing new sources of renewable energy online to address the growing risks and impacts of climate change, the significant environmental challenge is to minimize the impacts of renewable energy development on the landscape while still allowing appropriate and reasonably-sited renewables development to occur.

Site Evaluation Committee Findings and Rulemaking

The Nature Conservancy begins from the premise that all energy development projects – be they coal, oil, gas, wind, solar, hydro, or nuclear – have environmental impacts. We further believe that in the case of renewable energy, these direct and often localized impacts on the natural landscape may be balanced or offset by the long-term benefits to local, state, regional and global ecological health as a result of producing electricity without greenhouse gas emissions.

We have closely reviewed the potential environmental and natural resource impacts of the proposed project, with a specific focus on the Site Evaluation Committee’s required findings for issuance of a certificate to operate an energy facility. RSA 162-H:16 states (emphasis added on sections relevant to The Nature Conservancy’s interest in this docket):

After due consideration of all relevant information regarding the potential siting or routes of a proposed energy facility, including potential significant impacts and benefits, the site evaluation committee shall determine if issuance of a certificate will serve the objectives of this chapter. In order to issue a certificate, the committee shall find that:

(a) The applicant has adequate financial, technical, and managerial capability to assure construction and operation of the facility in continuing compliance with

the terms and conditions of the certificate.

(b) The site and facility will not unduly interfere with the orderly development of the region with due consideration having been given to the views of municipal and regional planning commissions and municipal governing bodies.

*(c) **The site and facility will not have an unreasonable adverse effect on aesthetics, historic sites, air and water quality, the natural environment, and public health and safety.***

(d) [Repealed.]

*(e) **Issuance of a certificate will serve the public interest.***

a. Aesthetics

Turbines will stand 488 feet above the ridge, hence there will be visual impacts associated with the project. The NH SEC's new rules are clear on the type of visual analysis that needs to be undertaken¹ and included in the application, and our understanding is that such analysis has been developed and submitted.

The Nature Conservancy is not prepared to pass judgement as to whether the visual impacts of the proposed project are unreasonable – this is outside our area of expertise. Given the importance of this issue, however, we will acknowledge that, in comparison to the 2012 Antrim Wind proposal, the current application reduces the adverse visual impacts by utilizing smaller turbines, eliminating one tower and lowering the height of the remaining towers, thereby lessening, but not eliminating, the aesthetic impact on areas of conservation concern.

b. Air and Water Quality:

Air Quality: To the best of our understanding, we are aware of no unreasonable adverse effect. The project will generate renewable energy, with the potential to offset the burning of fossil fuels which are known to have significant air quality impacts. Per the application materials, the project could reduce greenhouse gas emissions by more than 120,000,000 pounds per year.

Water quality: To the best of our understanding, we are aware of no unreasonable adverse effect. Wetland impacts are minimal (< 0.2 ac of permanent impact), and the project will go through the DES

¹ SEC adopted Rules, Site 301.05 Effects on Aesthetics

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wetland permitting process. Studies have shown that wind energy/renewable energy can result in water savings compared with other forms of energy generation, and the Antrim Wind application materials indicated that the project could save approximately 18 million gallons of water annually.

c. The Natural Environment:

To evaluate the project's potential and likely impacts on the natural environment, we looked at five issues: direct impacts to significant habitat; forest fragmentation; landscape connectivity; wildlife species of greatest conservation concern; and Natural Heritage-documented rare species and natural communities. We further considered the proposed mitigation strategies put forth in the application to understand the extent to which likely or potential impacts on the natural environment would be avoided, minimized or mitigated. Our review was based on publicly-available geospatial data layers, reports and analyses submitted by the applicant and other participants in the AWE docket, and other information made available to The Nature Conservancy. We did not conduct our own field assessments.

Impacts:

- 1) Significant Wildlife Habitat: The project will directly impact five acres of NH Wildlife Action Plan (WAP) Tier 1 Habitat (highest ranking in NH) and four acres of Tier 2 habitat (highest ranking in the biological region), which represents approximately 0.01% of the 4,286 acres of Tier 1 habitat and ~0.01% of the 2,990 acres of Tier 2 habitat mapped in the Town of Antrim. By way of context, the State of NH has 1.39M acres of identified WAP Tier 1 habitat and 1.05M acres of identified WAP Tier 2 habitat. There will be indirect, but difficult to quantify, ecological impacts on adjoining habitat. Looking at the specifically impacted habitat, we observe that the impacted Tier 1 habitat is at the very northwestern edge of a large WAP Tier 1 habitat patch. The project will affect the perimeter of this patch but will not significantly reduce its overall size or configuration.
- 2) Forest Fragmentation: The project lies within a 15,000-acre, relatively unfragmented forest block. Our understanding is that the development would need to clear about 55 acres and construct approximately 3.5 miles of new gravel access roads. Ultimately, the footprint of hard infrastructure would comprise 11.3 acres. The project's new road and land clearing will result in forest fragmentation in the northern portion of this forest block, with the potential for associated edge effects, at least during the maximum 50-year lifespan of the facility. The new

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openings and roads will create a potential vector for the introduction of invasive species. Because of the project's proximity to existing transmission infrastructure, no new transmission lines and related fragmentation is necessary, which is environmentally advantageous in comparison to many other proposed wind facilities.

- 3) **Landscape Connectivity:** The project will likely have localized impacts on habitat connectivity, as the cleared land, noise, or other disturbance from the facility may serve as a deterrent or alter the movement patterns of some species. To the best of our knowledge, there are no detailed habitat connectivity studies available for this region of New Hampshire. From a landscape perspective, however, it does not appear that the proposed project is likely to have a significant impact on regional connectivity. Based on a review of conservation land and land cover data, there are vast swaths of connected forest, wetland, riparian corridors, and conservation land in the vicinity of the proposed project, which provide north-south and east-west connectivity options for wide-ranging species.
- 4) **Wildlife Species of Greatest Conservation Concern:** There will be some degree of bird and bat mortality and impact. Breeding bird surveys documented 39 bird species utilizing the project area, none of which are considered to be rare or listed as species of greatest conservation concern. Three listed raptor species were observed during spring and fall migration surveys (bald eagle, golden eagle, and peregrine falcon). The project site provides suitable habitat for many species of wildlife that are characteristic of large forest blocks in our region – including wide-ranging mammals such as black bear and fisher– however we do not believe that the AWE project poses undue population-level impacts or risks to the persistence of these species because their distributions are relatively widespread, there is abundant and well-distributed suitable habitat for these species across this region and across New Hampshire, and the scale of this project is not large enough to substantially impact the availability of habitat for these species.
- 5) **Rare Species and Exemplary Natural Communities:** The New Hampshire Natural Heritage Bureau has determined that there will be no direct impacts to rare plant or exemplary natural communities. Questions have been raised as to whether the wind facility could result in air temperature warming that impacts the boreal nature of Loverens Mill Cedar Swamp. The

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science on this topic is relatively new, and we have reviewed recent studies that examined this phenomenon at much larger facilities in Texas², Iowa³, and Illinois⁴. It is difficult to apply the results of those studies to the Antrim facility, because the siting, scale, topography, land cover, and climate context is so different, however the existing science does not suggest a strong likelihood that this phenomena will be a significant risk.

Mitigation:

For impacts (1), (2), and (3):

- The project will permanently conserve a total of 908 acres of land, including the entirety of the ridge where the development is to occur. The proposed conservation land includes 313 acres of WAP Tier I habitat and 156 acres of WAP Tier 3 habitat, which is a significant multiple of the area of WAP Tier 1 and 2 habitat that will be directly impacted. We note, however, that the habitat value of at least a portion of the newly conserved land may be diminished by the wind facility, at least during its period of operation.
- We understand that the applicant has committed to providing \$100,000 to the New England Forestry Foundation to secure easements on additional conservation lands in the project area.
- Overall, by proposing to conserve a multiple of the acreage directly impacted, and through funding directed to undertake conservation that directly compensates for the impact on ecological functions and values, the proposed land conservation mitigation is comparable with the approach utilized for wetland impact mitigation in New Hampshire.

For impact (2):

- The project proposal indicates that the developer will use approved NH native seed mixes for all re-seeding activity. This practice should reduce but will not eliminate the potential that the project footprint could allow invasive species to gain a foothold. *Should the AWE project be constructed, we recommend consideration of a condition that would require post-construction invasive species monitoring and control.*

For impact (4)

² <http://www.nature.com/nclimate/journal/v2/n7/abs/nclimate1505.html>

³ <http://www.mdpi.com/2072-4292/6/12/12234/pdf>

⁴ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4541818/>

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- The developer has prepared a bird and bat conservation strategy which employs adaptive management strategies, recommendations from the NH Fish & Game Department, and U.S. Fish and Wildlife Services guidelines in order to reduce bird and bat mortality. *Should the AWE project be constructed, we recommend consideration of a condition that would require post-construction monitoring of bird and bat mortality, consistent with the American Bird Conservancy's principles for bird-smart wind energy development.*

In the 2012 Antrim Wind proposal, the SEC found that the project would not have an unreasonable adverse effect on the natural environment if certain conditions recommended by The New Hampshire Department of Fish and Game were imposed and the bird and bat protection plan was followed. Our analysis of the current application does not identify additional natural resource impacts beyond those assessed in the 2012 application. Proposed mitigation has been moderately enhanced through additional land conservation and funding.

d. Issuance of a certificate will serve the public interest

When determining if the proposed project would serve the public interest, The Nature Conservancy reviewed statutory language and the SEC rules⁵ to determine the criteria that the Committee would examine to determine if a project meets this standard. The SEC rules identify 10 criteria that the Committee shall consider when determining if a proposed project will serve the public interest including the welfare of the population; the overall economic growth of the state; the environment of the state; air and water quality; public health and safety.

After reviewing this project in the context of the state, and regions, overall energy planning, The Nature Conservancy believes that the proposed project meets the public interest finding as put forward in RSA 162-H:16 and further defined by SEC rules. In addition to the environmental costs and benefits of the project outlined above, we considered the following:

ISO-NE Planning

The Independent System Operator – New England (ISO-NE) has determined that more than 4,200 MW of electric generation have been retired or will retire in less than five years, and that additional retirements are looming. These retirements and higher capacity prices signal the

⁵ Site 301.16 Criteria Relative to Finding of Public Interest

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need for new supply resources in the region⁶ – including increased development of renewable energy facilities such as wind and solar. Renewable facilities are important as they provide diversity in regional generation without harmful emissions. In addition, ISO-NE reports that the development of new wind facilities in the region may require additional transmission lines to bring the electricity from remote areas to markets in the south. In the case of the AWE proposal, adjacency to existing transmission lines means that no significant transmission infrastructure is required to bring the power to market – delivering clean energy resources without the additional environmental impacts created with new transmission infrastructure.

Coalition of Northeastern Governors Resolution 39-1

Created in 1976, the Coalition of Northeastern Governors (CONEG) is a non-partisan association of the seven governors of Northeast states: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont. CONEG encourages intergovernmental cooperation on issues affecting the economic, social and environmental well-being of the Northeast. In August 2015 the Governor's signed Resolution 39-1 on commitments to reduce carbon emissions by at least 35-45% of 1990 levels by 2030.⁷ The Governor's identify that renewable energy projects can drive economic growth, while reducing emissions. The resolution states:

Timely actions to lower greenhouse gas emissions can capture reductions early in the process and lower the cumulative amount of emissions; provide positive signals and policy direction to industries and stakeholders for making informed investment decisions; and position the region to capitalize on the emerging green economy and significant energy and renewable energy opportunities to drive additional local and regional economic growth.

NH RSA 378:37, New Hampshire Energy Policy:

The general court declares that it shall be the energy policy of this state to meet the energy needs of the citizens and businesses of the state at the lowest reasonable cost while providing for the reliability and diversity of energy sources; to maximize the use of cost effective energy efficiency and other demand side

⁶http://accessnortheastenergy.com/content/documents/ane/News/20160126_presentation_2016stateofthe_grid.pdf.

⁷<http://www.coneg.org/Data/Sites/1/media/39-1-climate-change.pdf>

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resources; and to protect the safety and health of the citizens, the physical environment of the state, and the future supplies of resources, with consideration of the financial stability of the state's utilities.

The proposed project meets the standards sets forth in the statute, providing a diverse, reliable and renewable energy source at a predictable and reasonable cost to ratepayers. In addition, as the energy produced by the facility does not produce any emissions, the health and safety of our citizens are not at risk. As has been discussed previously in these comments, while there will be impacts to the physical environment from the project, we do not think those impacts are unreasonably adverse.

NH RSA 362-F:1, Electric Renewable Portfolio Standard.

Renewable energy generation technologies can provide fuel diversity to the state and New England generation supply through use of local renewable fuels and resources that serve to displace and thereby lower regional dependence on fossil fuels. This has the potential to lower and stabilize future energy costs by reducing exposure to rising and volatile fossil fuel prices. The use of renewable energy technologies and fuels can also help to keep energy and investment dollars in the state to benefit our own economy. In addition, employing low emission forms of such technologies can reduce the amount of greenhouse gases, nitrogen oxides, and particulate matter emissions transported into New Hampshire and also generated in the state, thereby improving air quality and public health, and mitigating against the risks of climate change. It is therefore in the public interest to stimulate investment in low emission renewable energy generation technologies in New England and, in particular, New Hampshire, whether at new or existing facilities.

The New Hampshire Legislature has determined that investment in renewable energy is in the state and region's public interest because of the economic and clean air benefits these projects can provide. The Nature Conservancy believes that well-sited projects that reduce dependence on fossil fuels, mitigate emissions that contribute to climate change, and help create a clean-energy future should be encouraged.

NH RSA 162- H:10-a Wind Energy Systems

In the statute governing the siting of energy facilities, the section governing wind energy facilities has additional language to ensure that the criteria and standards applied to review by the Site Evaluation Committee are comprehensive, and that potential benefits of wind projects are considered along with any adverse effects.

To meet the objectives of this chapter, and with due regard for the renewable energy goals of RSA 362-F, including promoting the use of renewable resources, reducing greenhouse gas and other air pollutant emissions, and addressing dependence on imported fuels, the general court finds that appropriately sited and conditioned wind energy systems subject to committee approval have the potential to assist the state in accomplishing these goals. Accordingly, the general court finds that it is in the public interest for the site evaluation committee to establish criteria or standards governing the siting of wind energy systems in order to ensure that the potential benefits of such systems are appropriately considered and unreasonable adverse effects avoided through a comprehensive, transparent, and predictable process.

Conclusion

The Nature Conservancy appreciates this opportunity to provide comments in the AWE docket. As an organization whose mission is to conserve our state's natural resources, we are sensitive to the impacts that large development projects can have on our landscape. We recognize that all energy development projects, including renewable energy facilities, will have impacts on the natural environment – making the proper siting of these energy facilities critical. We also understand that renewable and distributed energy projects can help reduce carbon emissions and lessen New Hampshire's dependence on fossil based fuels, collectively yielding local, state, regional, and global environmental benefits.

After thorough review of the portions of the application for which we have the organizational expertise and capacity to provide meaningful input into your decision making process - notably, the potential environmental benefits and impacts of the proposal - it is apparent that the AWE project will have impacts on the natural and physical environment. However, in our view the overall impact is not

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unreasonably adverse and the application offers a reasonable package to help mitigate or offset these impacts.

In these comments, we have offered several concrete recommendations related to post-construction monitoring and adaptive management; should the SEC decide to issue a Certificate to Operate, we would urge that our recommendations be incorporated into the conditions for that Certificate. We acknowledge that certain impacts, such as bird mortality, are difficult to fully mitigate and should be considered in the overall public cost-benefit analysis of renewable energy development that the Committee must weigh in issuance of a certificate to operate. We also feel that this project meets the public interest finding based on the criteria set forth in statute.

We appreciate the time and review that the Site Evaluation Committee spends on these important issues.

Sincerely,



Mark Zankel
State Director
The Nature Conservancy of New Hampshire